

10/529097

ABSTRACT JC17 Rec'd PCT/PTO 24 MAR 2005

Methods for promoting dopaminergic neuronal development and producing neural cells having a dopaminergic phenotype are provided. Dopaminergic neural cells may be used for treating individuals having a neurodegenerative disease such as Parkinson's disease. Dopaminergic cells may be implanted into the brain of the individual, and/or dopaminergic neural development may be induced or enhanced in the brain of the individual. Methods comprise expressing a nuclear receptor of the NG4A subfamily, e.g., Nurr1, above basal levels within the cell and treating the cell with Wnt ligand, thereby producing or enhancing proliferation, self-renewal, survival and/or dopaminergic induction, differentiation, survival or acquisition of a neuronal dopaminergic phenotype. The cell may be co-cultured with astrocytes or glial cells and may be contacted with an FGF growth factor.